

## CLAIMS:

1. Linear electric motor or actuator comprising a movable part (21) consisting of a soft-magnetic core (22) which supports a set of electrically conductive turns (25), which movable part (21) is slidably supported by a rail (26) which is provided with at least one set of permanent magnets (27, 30, 31), distributed in longitudinal direction along the core's  
5 periphery, which magnets produce magnetic fields that cooperate with the set of turns via an air-gap, characterized in that the soft-magnetic core (21) is made of soft-magnetic composite material, in that said electrically conductive turns (25) are wound around the periphery of the core (21) substantially perpendicularly to the central line thereof, and in that at least two sets of permanent magnets (27, 30, 31) are arranged along said periphery in longitudinal  
10 direction such that the at least two sets of magnets are arranged at different angles to said core.
2. Linear electric motor according to claim 1, characterized in that the cross-section of said core (21) of soft-magnetic composite material has a square or rectangular  
15 shape, and in that the sets of permanent magnets (27, 30, 31) are positioned along at least two, but preferably three, sides thereof.
3. Linear electric motor according to claim 1, characterized in that the cross-section of said core (42) of soft-magnetic composite material has a substantially circular  
20 shape, and said set of permanent magnets is formed by ring magnets (47) which surround a substantial portion of the circumference of the core (42) as viewed in transverse direction.
4. Linear electric motor according to one or more of the preceding claims, characterized in that said rail (26) is provided with cooling means (32) which extend in the  
25 longitudinal direction of the rail and are in heat-exchanging contact with said core (22) and turns (25) over part of their surface.
5. Linear electric motor according to one or more of the preceding claims, characterized in that said core (22) is provided with internal cooling channels.

6. Linear electric motor according to one or more of the preceding claims, characterized in that said core (22) is provided with circumferential slots in which said turns can be located.